

Tobacco Cessation Provider Competency Course

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<http://chppm-www.apgea.army.mil/dhpw/Population/TobaccoCessation.aspx>

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Introduction

The impact of tobacco use on individual users, the population and economy is devastating. Nicotine is a very addicting substance with convenient, legal delivery devices available at every corner gas station. Most tobacco users enjoy its effects and find it very difficult to quit, even with counseling and pharmaceutical assistance. A concentrated health care intervention, supported by all providers of health care, is necessary to address this problem.

Program Objectives

Upon completion of this course, the participant will:

- Be able to discuss the effects of tobacco on all body systems.
- Understand the mechanism of nicotine's effect related to the release of neurotransmitters and the connection to dependence and addiction.
- Be familiar with the concept and use of various assessment tools in tobacco cessation.
- Be able to identify the stages in the behavior change process and relate the appropriate interventions at each level.
- Have the ability to discuss the FDA-approved pharmacotherapies for tobacco cessation; understand the indication, action, contraindications, dosing, potential adverse reactions and treatment protocol for each pharmacotherapies.
- Have general knowledge of alternate tobacco cessation treatment modalities needed to answer patient questions.
- Understand the connection between stress, depression and tobacco use in relation to triggers and relapse.
- Have a knowledge base to confidently manage patients in tobacco cessation programs.

Competency test for each section of this course, an answer key, and bibliography can be found at the end of this document.

Background

Statistics

Tobacco use is the chief avoidable cause of illness and death in our society, responsible for more than 440,000 deaths in the United States each year (CDC, 2003). Most tobacco-related deaths are from lung cancer, ischemic heart disease or chronic obstructive pulmonary disease (COPD). Adult smokers lose an average of 13.2 (male) and 14.5 (female) years of life because they smoke. Heart attacks are seen two to three times more in a smoker than in a non-smoker. Men under 45 years of age who smoke 25 or more cigarettes a day are 15 times as likely to die from CHD as non-smokers of the same age (Doll & Peto). Even light smokers are at increased risk of CHD. Women who smoke one to four cigarettes a day have 2.5 times increased risk of fatal coronary heart disease (Bartecchi, et al 1994).

The societal costs of tobacco use are staggering as well. The estimated smoking-attributable cost for medical care in the US in 1998 was more than \$75 billion (CDC, 2003). The cost of lost productivity due to smoking-related disability was estimated at over \$80 billion per year (CDC, 2003). The CDC reports that in 1997 approximately 46.5 million adult Americans smoked.

More than 6,000 children and adolescents try their first cigarette each day (CDC, 1998). Three thousand additional children and adolescents become regular users of tobacco each day, resulting in approximately 1.23 million new smokers under the age of 18 each year (Gilpin, et al., 1999). Among high school seniors who had used smokeless tobacco, 79 percent had first done so by the ninth grade (USDHHS, 1994). By the time they are high school seniors, 35 percent of adolescents currently smoke and 64 percent report previous smoking (CDC, 2003). Prevalence among high school students vary by race with caucasians at 31.9 percent, blacks at 14.7 percent and hispanics at 26.6 percent (CDC, 2003).

The huge discrepancy between the number of tobacco users desiring to quit and those that successfully quit is testament to the addictive nature of these products. Up to 70% of smokers report the desire to quit (Health Education Authority, 1995), but less than 25% who try to quit succeed as long as a year (Stolerman, I.P. & Jarvis, M.J., 1995). Studies show that as many as 40% of laryngectomy patients and 50% of lung cancer patients resume smoking shortly after undergoing surgery (Stolerman, et. al, 1995).

Genetic Link– CYP2A6

Recent research suggests that certain smokers may be predisposed to nicotine addiction through the effects of a gene responsible for metabolizing nicotine (Pianezza, Sellers & Tyndale, 1998). Non-smokers are twice as likely to carry a mutation in the gene that helps to rid the body of nicotine (CYP2A6) more efficiently. Smokers who carry the mutation are likely to smoke less because the nicotine and its effects are not rapidly removed from the brain and bloodstream. By contrast, smokers with the efficient

version of the gene will tend to smoke more heavily to compensate for the relatively shorter term effects.

Effects of Tobacco on the Body

Nicotine is an addictive pharmacological agent found in tobacco products. It exhibits a wide variety of both stimulant and depressant effects on multiple systems both within the brain and throughout the body. This variability, combined with the often severe withdrawal symptoms with cessation explain why individuals continue to use tobacco despite increased public awareness about the dangers.

Nicotine is readily absorbed from the gastrointestinal tract, respiratory mucous membranes, and skin. The average cigarette provides between 0.05 and 2.5 mg of nicotine and is an extremely efficient delivery device as inhaled nicotine reaches the brain much more rapidly than if injected. A lethal dose of nicotine for an adult is approximately 60 mg, though if poisoning occurs, it is usually due to accidental ingestion by a child (Gutierrez, 1999).

Nicotine in any form has both positive and negative effects on the body. Some of the positive effects include improving long-term memory, increasing accuracy and speed of information processing, increasing the pain threshold and reducing tension and anxiety. Negative effects of smoking include chronic lung disease, heart disease, and stroke as well as cancers of the lungs, larynx, esophagus, mouth and bladder. Smoking contributes to cancers of the cervix, pancreas and kidneys. Smokeless tobacco causes several oral cancers, leukoplakia (white, often pre-cancerous lesions), gingival recession, elevated blood pressure and increased risk of cardiovascular disease (CDC, 2003). Effects on specific body systems follow.

- EENT: Within seconds of inhalation, irritating gases (formaldehyde, ammonia, hydrogen sulfide, and others) begin to affect sensitive membranes making the eyes water, nose run, and irritating the throat. Continued smoking produces abnormal thickening in the membranes lining the throat accompanied by cellular changes that have been linked to throat cancer (Bernfeld, et al. 1983). There may be a loss of both the sense of smell and taste. This occurs so gradually that it may go unnoticed.
- Lungs: Many of the compounds in cigarette/cigar smoke are deposited as a layer of sticky tar on the lining of the throat, bronchi and the delicate alveoli. It is estimated that a pack-a-day smoker accumulates approximately eight ounces of tar annually. Continued exposure to these noxious particles can paralyze the cilia and increase mucus production as well as adversely affecting elastin (the enzyme that keeps the lungs flexible), predisposing a person to emphysema. Excess mucus serves as a breeding ground for bacteria and viruses, making an individual more susceptible to colds, flu, bronchitis, and other respiratory infections. Repeated chemical injury to the lung tissue causes the lining of the

bronchi to thicken. As a result of these processes, the respiratory rate increases and the lungs are forced to work much harder.

- CV: Within one minute of smoke inhalation, the heart rate and blood pressure begin to rise. The heart may develop an irregular rhythm and can increase in rate by as much as 30 percent or up to 36,000 additional beats per day. Peripheral vaso-constriction in conjunction with the increased heart rate causes the blood pressure to elevate as much as 10 to 15 percent. Additionally, tobacco users tend to have higher fibrinogen and platelet counts as well as less elastic blood vessels, putting them at higher risk for arteriosclerotic disease and thrombus development. Finally, the carbon monoxide molecule attaches itself to hemoglobin much more easily than oxygen does. This reduces the amount of oxygen available to the tissues.
- GI: Tobacco use causes a decrease in appetite secondary to increased gastric secretions and decreased stomach emptying rate as well as the associated loss of taste. Smokers often report diarrhea and/or constipation, frequently with both in the same person.
- Reproductive: Both male and female are systems are adversely affected. Increased hepatic metabolism causes a decrease in male testosterone levels. Men between the ages of 31 and 49 showed 50% increase in the risk of impotence among smokers compared with men who had never smoked (Mannino, et al. 1994). Spermatozoa from smokers have been found to be decreased in density and motility compared with that of non-smokers (Makler, et al 1993). Women also have reduced fertility, approximately 72% of that of non-smokers (Baird & Wilcox, 1985). Epidemiological studies have found women who smoke have a much higher risk of developing cervical cancer and ectopic pregnancy, experiencing earlier onset of menopause with worse symptoms and are more likely to develop post-menopausal osteoporosis.
- Integumentary: The skin tends to be very dry, often with a grayish, wasted appearance as it has less elastin, a type of protein which keeps the skin supple and prevents wrinkling. Smokers in their 40's often have as many facial wrinkles as non-smokers in their 60's and may develop hollow cheeks through repeated sucking on cigarettes.
- Endocrine: Nicotine causes an increase in serotonin, endogenous opioid peptides, pituitary hormones, catecholamines, vasopressin and cortisol while decreasing the amount of insulin secreted.
- Musculoskeletal: Skeletal muscle relaxation shortly follows ingestion.

Special Populations

Many factors could potentially affect the choice, delivery, and efficacy of tobacco dependence treatments. Although few studies have examined interventions specifically designed for a particular group and there is no consistent evidence that targeted cessation programs result in higher quit rates than do generic interventions of comparable intensity, treatment programs should attempt to accommodate for gender, pregnancy, race, ethnicity, age, education level, co-morbidity and/or hospitalization status as well as other chemical dependency treatments as dictated by the patient and program. Racial and ethnic minority groups may differ from whites in awareness of the health effects of smoking (Brownson, et. al, 1992) and many report a sense of fatalism that may affect disease prevention efforts. Using language that is understood by the participant when possible and culturally appropriate models or examples may increase any tobacco user's acceptance and success.

Women: In 1998, 22% of women and 30% of high school senior girls in the US smoked. Lung cancer is now the leading cause of cancer death in women, claiming 165,000 lives in 1999 (CDC, 2003). While it has been suggested that some treatments are less efficacious in women secondary to different stressors and barriers, few gender differences related to tobacco initiation and successful cessation have been identified (CDC, 2003). Women are more likely to be diagnosed with depression, concerned with weight gain, and have less social support for stopping, but national survey data show them quitting at rates similar to men. Women attempting to become or already pregnant may be especially receptive to intervention.

Pregnancy: Quitting at any time in the pregnancy can yield benefits for the fetus. Incidence of miscarriage, placental abruption, premature birth, low birth weight, stillbirth (death of an infant within the first week of life), and SIDS are much higher if the mother continues to smoke (Royal College of Physicians, 1992). Anomalies such as cleft palates, cleft lips and childhood cancer are more prevalent (Wisborg, 1985) in the children of smokers. One in four women who smoke succeed in stopping at some time during their pregnancy. Unfortunately, almost two-thirds who succeed in stopping during pregnancy restart again after the baby is born.

African Americans: According to the American Lung Association (ALA), tobacco use is a major contributor to the top three causes of death for African Americans – cancer, cardiovascular disease, and stroke. The prevalence rate for smoking among African Americans is slightly higher at 26.7% compared with 25.3% for Caucasians. African Americans smoke fewer cigarettes, on average, but tend to smoke brands with higher nicotine and tar levels and are more likely to smoke mentholated cigarettes (ALA, 2001). Interventions with the best documented success for this population include the nicotine patch (Ahluwalia, et al. 1998), clinical advice (Lipkus, 1999), counseling (Schorling, 1997), tailored self-help manuals and materials, and telephone counseling (Lipkus).

American Indian/Alaska Native: Subgroups of these populations have some of the highest documented rates of infant mortality caused by SIDS, which is affected by tobacco use (Coultas, 1994). Successful interventions with these populations begin with screening for tobacco use, then incorporating clinical advice with clinic staff reinforcement, and follow-up materials (Johnson, 1997).

Hospitalized Smokers: These patients may be particularly motivated to quit because the illness resulting in hospitalization may have been caused or exacerbated by smoking and every hospital in the US must now be smoke free. Suggested interventions with this "captive audience" include: asking every patient on admission about tobacco use and documenting the current status, flagging the chart to prompt the physician to advise smoking cessation, listing tobacco use on the admission problem list as well as a discharge diagnosis, initiating counseling and pharmacotherapy to assist with maintaining abstinence and to treat withdrawal symptoms that peak by the second or third day.

Psychiatric co-morbidity and/or chemical dependency: Psychiatric disorders are more common among tobacco users than in the general population. Among patients seeking tobacco cessation services, as many as 30% of may have a history of depression (Anda, et al, 1990) and 20% or more may have a history of alcohol abuse or dependence (Brandon, 1994). Smoking cessation may exacerbate a patient's co-morbid condition and affect the pharmacokinetics of certain psychiatric medications (Hughes, 1993). For example, cessation may elicit or exacerbate depression among patients with a prior history of affective disorder (Covey, et. al. 1998). Smokers with psychiatric co-morbidities have heightened risk for relapse to smoking after a cessation attempt (Brandon, 1994) and should be closely monitored. Treatment for smoking cessation can be provided concurrent to treating individuals for other chemical dependencies as there is little evidence to suggest these patients will relapse to other drug usage on cessation of smoking (Hurt, R.D., 1993).

Children and Adolescents: A comprehensive review of adolescent cessation programs in a variety of settings concluded that such programs produce quit rates that exceed naturally occurring rates, but more research needs to be done (Sussman, et al. 1999) as existing studies have had multiple limiting factors. There are many community-and school-based programs available. Some of these include: Project Towards No Tobacco Use (TNT), Know Your Body, Students Helping Others Understand Tobacco (SHOUT), Minnesota Smoking Prevention Program, Waterloo Smoking Project, Project Adolescent Learning Experiences in Resistance Training (ALERT), Midwestern Prevention Program, and University of Vermont School and Mass Media Project. Most projects focus on tobacco use prevention with a wide variety of approaches to cessation available.

Children and adolescents typically vary from adults in their smoking patterns and the effects of social (peer) pressure and face the significant barriers of the lack of both information and support. It is estimated that up to 50% of high school aged smokers have made one or attempts to quit (SGR, 1989). Interventions that have shown some

success in this population include use of the non-smoking pledge and a focus on the immediate versus long-term health effects of tobacco use (SGR, 1989). This population also greatly benefits from the delivery of information regarding second-hand smoke exposure to their parents which can reduce childhood exposure and parental smoking rates (Severson, et al. 1997).

Older Smokers: There are benefits to tobacco cessation at any age including reducing the risks of chronic disease, promoting more rapid recovery from illnesses and improving cerebral circulation (Hermanson, Omenn, Kronmal & Gersh, 1988). Interventions shown to have been most effective in this population include buddy support, age-tailored self-help, and particularly proactive telephone counseling (Rimer, et.al. 1994).

Assessment Tools and Types of Counseling

Assessment tools are often utilized prior to enrolling an individual in a tobacco cessation program. These tools are useful for the health care provider because they enable him to better understand his patient and specifically tailor the program to his patients' needs. The specific tools for tobacco cessation programs are: the Nicotine Dependence Test; Stages of Change; and the Beck Depression Inventory.

Nicotine is a highly addictive drug found in all tobacco products. An individual using tobacco products becomes both physically and psychologically dependent on nicotine. When the smoker or dipper cuts back on consumption or attempts to quit, he experiences withdrawal symptoms. Withdrawal symptoms are often the reason a tobacco user continues using tobacco.

Nicotine dependence is an actual diagnosis (305.1). The "gold standard" for diagnosis of nicotine dependence comes from the DSM IV. The key features for this diagnosis are: continued use despite wanting to quit; prior quit attempts; persistent use in the face of physical illness; tolerance; and the presence of withdrawal symptoms. Based on these criteria, the vast majority (nearly 90%) of medical patients who smoke have nicotine dependence (Prochazka, 2000).

Nicotine withdrawal (292.00) is also a diagnosis in the DSM IV. The key features for diagnosis of nicotine withdrawal are: dysphoric or depressed mood; insomnia; irritability, frustration, or anger; anxiety; difficulty concentrating; restlessness; decreased heart rate; and increased appetite or weight gain. Withdrawal symptoms usually occur within a few hours after the last cigarette and peak about 48 to 72 hours later. These symptoms can last for a few days to several weeks. Patients should be provided with information on how to deal with withdrawal. Educating the patient on stress management techniques is often helpful.

Techniques for dealing with withdrawal include:

- Do not rationalize,
- Avoid people/places where you are tempted to smoke,
- Alter habits associated with smoking,
- Deep breathing,
- Visual imagery,
- Stay active and
- Remind yourself why you've quit.

Assessment for Nicotine Dependence

The Fagerstrom Test for Nicotine Dependence (FTND) is a revision of the original Fagerstrom Tolerance Questionnaire (FTQ). The FTQ eliminated the nicotine-rating item and the inhalation item because they were found to be unrelated to biochemical measures and these two items were the primary contributors to psychometric deficiencies in the FTQ (Heatherton, et.al. 1991).

The two items in the FTQ that are considered the key questions are as follows:

(1) Does the patient smoke within 5 minutes of awakening? (2) Does the patient smoke greater than 25 cigarettes per day? Those patients who answer affirmatively to both questions are highly dependent on nicotine (Prochazka, 2000). See Enclosure 8 to view the tool CHN will use.

Tobacco cessation historically has had quite low success rates. Until the mid 1980's, quitting cold turkey was the preferred method of quitting. With the introduction of Nicotine replacement therapy and other pharmacotherapy, many patients are asking for help from their health care provider. After all, 70% of smokers do express the desire to quit. Researchers hoping to improve cessation success rates have looked into how and why people stop tobacco use.

The two models of behavior change are the Health Belief Model and the Stages of Change Model. **The Health Belief Model** describes four beliefs positively related to successful quitting. These beliefs include:

- 1) The patient believes he could get a tobacco-related disease and this is worrisome to him.
- 2) The patient believes that he can make an honest attempt at quitting.
- 3) The patient believes that the benefits of quitting outweigh the benefits of continuing tobacco use.
- 4) The patient knows of someone who has had health problems as a result of tobacco use.

Assessment for the Stage of Change

Over the past two decades, Prochaska, DiClemente, and Norcross have developed what they refer to as the **Transtheoretical Model of Change (TMC)**. Research on the TMC demonstrates the benefits of identifying the tobacco user's readiness to change before attempting to intervene. Each stage of change is best addressed with a particular type of information and intervention (Kottke, 1999).

The TMC stages of change as applies to tobacco cessation are:

- Precontemplation
- Contemplation
- Preparation
- Action
- Maintenance
- Relapse

In **precontemplation**, the patient has no intention to change behavior in the immediate future. The patient may be unaware or under aware of their problem and not ready to change. The best strategy for counseling a patient in this stage of change is to offer general information and counseling regarding their problem with tobacco dependence.

Interventions for the Precontemplator include:

- 1) Assess the patients' awareness and knowledge of tobacco use/dependence.
- 2) Discuss the pros and cons of tobacco use.
- 3) Discuss the benefits of quitting.
- 4) Help the patient identify his reasons for usage. (i.e. triggers)
- 5) Acknowledge the patients' concerns.
- 6) Advise the patient of his need to quit and personalize the message.
- 7) Provide the patient with self-help materials.

Contemplation is the TCM stage of change in which the patient is aware that a problem does exist and is seriously thinking about overcoming it. The patient has not yet made a commitment to change or taken any action. The best strategy for counseling a patient in this stage of change is to offer additional information regarding tobacco usage.

Interventions for the Contemplator include:

- 1) Discuss reasons for wanting to quit.
- 2) Review barriers to quitting.
- 3) Review resources and support for quitting.
- 4) Review coping skills.
- 5) Discuss strategies for quitting.
- 6) Give self-help materials.

Preparation is the TCM stage of change in which the patient combines both the intention to quit and begins to change behaviors related to tobacco use. The patient is intending to take action in the next month. The best strategy for counseling a patient in this stage of change is to offer an intervention program. The patient is now ready to address his tobacco addiction.

Interventions for the Preparer include:

- 1) Review reasons for quitting.
- 2) Resolve ambivalence.
- 3) Develop a QUIT PLAN.
- 4) Set a quit date.
- 5) Provide encouragement and support
- 6) Give direct and positive messages for quitting
- 7) Have the patient practice saying “No thank you, I don’t smoke.” Or use visual imagery.
- 8) Give self-help materials/Refer to a support group.

Action is the TCM stage of change in which the patient modifies his behavior, experiences a/o environment in order to overcome his problems. The patient exhibits behavioral changes that require a considerable commitment of time and energy. The best strategy for counseling a patient in this stage of change is to offer continued support and reinforcement for positive changes and to assess and address relapse potentials.

Interventions for the Patient in the Action Phase include:

- 1) Review reasons for quitting.
- 2) Explore the patients’ relationship with tobacco.
- 3) Select a quit date.
- 4) Review relapse triggers.
- 5) Discuss obstacles to quitting.
- 6) Review coping strategies.
- 7) Explore support system.
- 8) Encourage cessation efforts.
- 9) Focus on progress.
- 10) Offer referral to support group.
- 11) Be sure to follow-up.

The health care provider may also offer many suggestions for the patients' quit date. First and foremost, the patient should not smoke or use any tobacco products on his quit day. Smoking on the quit date decreases the likelihood of 6-month abstinence. Smoking on the quit date may be an indication for postponing the cessation attempt or adjusting the therapy for smoking cessation (Westman, et.al, 1997). Other provider recommendations for the quit date include: get rid of all tobacco products and paraphernalia (lighters, ashtrays, etc...); stay active; drink lots of water; avoid high-risk situations where the urge to smoke is strong; avoid alcohol and coffee; and avoid being around individuals who are smoking.

Maintenance is the TCM stage of change in which the patient is working to prevent relapse. This stage lasts from six months to an indeterminate period. The best strategy for the health care provider during this stage is to offer reinforcement and praise. Follow-up is important during the quitting process. Praise the patients' efforts and successes at each office visit and telephone follow-up.

Relapse is the TCM stage of change in which the patient has a slip and returns to some amount of tobacco use. Unfortunately, relapse is the norm with nicotine dependence. Tobacco users, however, do seem to benefit from prior quit attempts. At this point, remind the patient that tobacco cessation is a process and motivate him to try again. The best strategy for the health care provider during this stage is to praise his quit attempt and encourage and motivate the patient to try again.

The patient most likely to relapse exhibits the following characteristics: inability to cope with withdrawal and cravings; high dependence on nicotine; deals ineffectively with stress and moods; non-adherent; ambivalent about quitting; and has mental health issues. Patients in relapse may need help in these areas before their next cessation attempt.

Treatment strategies for the patient in relapse include:

- 1) Identify barriers to success.
- 2) Review and explore negative feelings.
- 3) Explore successful quitting strategies.
- 4) Review relapse events and triggers.
- 5) Encourage and motivate the patient to try again.

Tobacco Cessation and Depression

Research has indicated a link between depression and difficulties in smoking cessation. During the past decade, research findings have indicated a complex association between depression and addiction to nicotine and tobacco (Covey, 1999). Persons with a vulnerability to depression are more likely to become regular smokers and to become dependent smokers when compared with non-depressed individuals. Because nicotine dependence and depression are both highly prevalent conditions (estimated at 20% and 17%, respectively, in the adult population in the U.S.), smoking cessation treatment for the depression-prone smoker poses a special and complex challenge to the health care provider.

Depression-prone smokers have a much lower quit rate. Research has demonstrated the depression-prone smokers' cessation success rate is half that of the nondepressed smokers' cessation rate (Sabol, 1999). Depression-prone smokers experience more severe nicotine withdrawal. Seventy five percent of depression prone smokers will experience depressed mood as a withdrawal symptom. Only 15% of smokers without a vulnerability to depression reported depressed mood (Covey, et.al., 1990). Another concern for the health care provider is the rate of recurrent depressive episodes is higher in quitters than in non-quitters.

Laboratory studies conducted in animals and in humans have shown a strong association between smoking and depression. The use of nicotine and other substances in tobacco affect our neurobiology. Nicotine stimulates the release of dopamine, norepinephrine, and serotonin. These neurotransmitters are involved in the regulation of mood.

The **Beck Depression Inventory** is a good instrument for screening depressive disorders in a general population sample (Enclosure 9). When analyzed, the BDI was compared to the SCAN (schedules for clinical assessment in neuropsychiatry). The BDI yielded 100% sensitivity, 99% specificity, and 98% diagnostic value (Lasa, et.al., 2000). When patients are seen in the outpatient setting, clinical prudence indicates that the comorbid depression is first stabilized (Covey, 1999).

Furthermore, the possibility that smoking cessation can provoke a depressive condition could plunge the patient who is already depressed into an even more severe psychiatric state (Covey). Therefore, all patients should be screened by the BDI; and any patients indicating the presence of depression should be referred to psychiatry. The patients' nicotine dependence may be addressed when the depression has been resolved (Covey).

Types of Counseling

Health care provider encouragement of tobacco cessation has been studied extensively over the last 15 years. An early meta-analysis showed an overall cessation rate of 8.4% at 6 months with brief (<5 min) physician advice (Kottke, et.al. 1988). Brief interventions during medical visits are cost effective and could reach most smokers. Unfortunately, brief interventions are not consistently delivered! According to Thorndike, in 1995, smokers were advised to quit by their physician at only 21% of their clinic visits. And this percentage has not increased over time. At present, physician practices for smoking intervention fall far short of the national health objectives and practice guidelines.

The National Cancer Institute (NCI) has recommended clear, concise guidelines for the health care provider to follow when counseling a patient on tobacco cessation. These guidelines are referred to as **The Four A's**. **The Four A's** are:

- **A**sk
- **A**dvice
- **A**ssist
- **A**rrange

First **Ask**. At each clinic visit, the smoking status of the patient must be established and documented. The NCI recommends recording tobacco-use status as a vital sign.

Next, when the health care provider is **advising** a patient to quit using tobacco, the advice must be firm and the message clear. When sharing advice with the patient, the advice should be personalized. For example, incorporate current health status as a reason to quit smoking. Keep the message positive and focus on the benefits of quitting tobacco use. The NCI also recommends focusing on the **4 R's** during counseling: **R**elevance of quitting; **R**isks of tobacco; **R**ewards of quitting; and **R**epeat the message.

Assist is the third A of the NCI's counseling guidelines. The health care provider should assist the patient in developing his QUIT PLAN, provide stage-based self-help materials, and refer the patient to a specialist or program if needed. Assistance may also consist of pharmacotherapy. The use of assistance for smoking cessation has increased over recent years. Overall, those patients who use assistance have a higher success rate than those that do not, (15.2% and 7.0% respectively) (Zhu, et.al. 2000).

Arrange is the fourth and last A of the NCI's counseling guidelines. The health care provider should arrange for follow-up. It is important to ask if the patient has stopped using tobacco and to inquire if the patient has experienced any problems. The health care provider should always provide encouragement and remember cessation rates should double with adequate follow-up.

Motivational interviewing is a technique introduced by Miller & Rollnick in 1991. Above all, when interviewing the patient, the health care provider should remain positive and encouraging to the patient. Providing the patient with treatment options/ choices improves the patients' self-efficacy and belief in himself. The provider should also provide positive advice and practice empathy while helping the patient remove barriers to quitting. Focusing on the negative effects of tobacco use and scare tactics are not effective strategies for motivating tobacco users to quit. Motivational interviewing is the positive alternative.

Group counseling is an effective tool for patients ready to quit using tobacco. Cessation rates average 20% for those willing to participate. Unfortunately, only 12.4% of smokers who were interested in assistance with cessation desire the help from a stop smoking group. Group counseling does provide social support which increases the smokers' desire to quit; helps the smoker acquire the skills to become and remain abstinent; and reinforces actions that have been taken to quit.

Proactive telephone counseling is essentially following up on all patients who were advised to quit using tobacco. By following up after health care provider advice to quit, cessation rates can be doubled (Prochaska, 2000).

Conclusion

There are key components necessary to create an effective behavioral program. First, the patient should be assessed for his stage of change. Next, barriers to quitting should be identified and a cessation and relapse prevention plan should be developed (Prochaska, 2000).

Pharmacological Intervention

The use of pharmacological interventions in tobacco cessation programs has been shown to significantly increase the success rates in patients attempting to quit smoking. The Food and Drug Administration (FDA) has approved five first-line pharmacotherapies to aid in tobacco cessation, Bupropion SR (Zyban®), Nicotine Transdermal System, Nicotine Gum, Nicotine Nasal Spray and the Nicotine Inhaler (Fiore, Bailey, Cohen, et al., 2000). Two additional pharmacotherapies, Clonidine and Nortriptyline, have shown some success in limited studies, but have not been approved by the FDA for use in tobacco cessation; their use is considered as second-line and investigational (Fiore, et al., 2000).

Zyban® (Bupropion SR 150 mg)

Category and Pharmacological Action

Bupropion SR is classified as an Antidepressant; Central Nervous System (CNS), miscellaneous. It is approved by the FDA for use in tobacco cessation programs and marketed by Glaxo Pharmaceuticals under the trade name Zyban®. The mechanism of the antidepressant effect of bupropion is unknown; it does not inhibit monoamine oxidase, and is a weak blocker of the neuronal uptake of serotonin and norepinephrine; it also inhibits the neuronal re-uptake of dopamine to a slight extent (Mosby, 2001; Micromedex, 2003). The mechanism by which bupropion aids a patient's ability to abstain from smoking is also unknown, however, there is a presumption that this action is related to nonadrenergic and/or dopaminergic mechanisms (Mosby, 2001).

Absorption, Metabolism and Elimination

After oral administration of Bupropion SR, peak plasma levels of the drug are reached in 3 hours, half-life ($t_{1/2}$) is 8-24 hours and time to a steady state is 1.5-5 days. The drug is extensively metabolized by a first-pass effect through the liver to both active and inactive metabolites. Bupropion is excreted through urine (87%) and feces (10%).

Studies have found that elimination of the major metabolites of bupropion may be altered by reduced hepatic or renal function. One study discovered that the half-lives of the metabolites were prolonged in patients with cirrhotic liver disease, resulting in accumulated levels 2-3 times normal (Mosby, 2001).

Clinical Studies

Although several studies have looked at bupropion and its use in tobacco cessation, two studies in particular demonstrated bupropion's efficacy as an aid to tobacco cessation. Both studies were placebo-controlled, double blind trials in nondepressed, chronic cigarette smokers. The first study was a dose-response trial, conducted in three clinical locations. Participants in this study were treated with one of three doses of bupropion (100, 150 or 300 mg./day), or placebo, for 7 weeks. In this study, quitting was defined as abstinence from smoking during the last 4 weeks of treatment. Abstinence was demonstrated by participant's daily journals and verified by testing the participant's expired air for carbon monoxide levels. Results from this study showed that treatment

with bupropion 150 or 300mg./day was significantly more effective than placebo. Abstinence rates with bupropion at 300 mg./day were double those with placebo (Mosby, 2001). The second study was in the form of a comparative trial, conducted in four clinical locations. Four treatment modalities were compared: Bupropion SR 300 mg./day, Nicotine Transdermal System (NTS) 21 mg./day, a combination of Bupropion SR 300 mg./day and NTS 21 mg./day, and placebo. Participants were treated for 9 weeks. Participants treated with Bupropion SR were started at 150 mg./day for 3 days while still smoking, then increased to 300 mg./day (150 mg. 2x/day). NTS 21mg. was added to the bupropion group and the NTS group on the quit day; during weeks 8 and 9 of the study, NTS was tapered to 14 mg. and 7mg. respectively. In this study, quitting was defined as total abstinence during weeks 4-7, determined by participant journals and expired air carbon monoxide levels. Results showed that participants treated with either bupropion or NTS showed significantly greater 4-week abstinence rates than those in the placebo group. Participants treated with bupropion or the combination of bupropion and NTS achieved abstinence rates over double those of the placebo group. Participants treated with combination therapy achieved the highest rates of abstinence, however, they were not statistically significant (Mosby, 2001).

Indications, Usage and Dosage

In addition to use as an antidepressant, Bupropion SR is indicated as a smoking cessation treatment, and marketed for sale as the trade name Zyban®. The recommended and maximum dose of Zyban for smoking cessation is 300mg./day, in two 150mg. doses. Patients should begin at 150mg./day for the first 3 days, then increased to 300mg./day (for most patients), with an interval of at least 8 hours between doses (Mosby, 2001). The treatment with Zyban should begin while the patient is still smoking, as a therapeutic blood level of the drug is not reached for approximately 1 week. Patients should be encouraged to set a “quit date” within the second week of treatment. Bupropion treatment should be continued for 7-12 weeks, with the duration individualized to the benefits and risks of each patient (Mosby, 2001; U.S Dept. of Health and Human Services, 2000). If a patient has not made significant progress toward quitting by the seventh week of Zyban therapy, it is unlikely that the patient will be successful at this attempt, therefore treatment should be discontinued (Mosby, 2001). There is frequent mention in various literature of the importance of continued counseling and support throughout and after the treatment period.

Contraindications

Zyban® is contraindicated in patients with a history of seizure activity or disorder. Zyban® is also contraindicated in patients with a current or prior diagnosis of bulimia or anorexia nervosa. This is due to a higher incidence of seizures in past studies of patients with bulimia treated with bupropion immediate-release formulation. Patients receiving treatment with another medication containing bupropion should not take Zyban®; incidence of seizure is dose-dependent.

Zyban® should not be administered concurrently with a monoamine oxidase inhibitor (MAOI). There should be a 14-day period between the discontinuation of a MAOI and the initiation of any bupropion treatment, as acute toxicity to bupropion may occur.

Zyban® is also contraindicated in patients with known allergy to bupropion or its components (Mosby, 2001).

Warnings

Patients must be made aware that Zyban® and Wellbutrin® contain the same active ingredient and that patients should never receive concurrent therapy with Wellbutrin® and Zyban®, or any other medication containing bupropion.

Animal studies, using large doses of bupropion over long periods of time, have shown the drug to have the potential for hepatotoxicity (Mosby, 2001; Micromedex, 2003). Patients should be carefully screened for history of liver disease.

There is a risk of seizure associated with bupropion, which studies have shown to be dose-dependent. Risks are related to patient factors, clinical situations and concomitant medications. Seizure risk has been shown to be linked with the presence of predisposing factors, however, there have been instances of seizure activity in the absence of such factors (Mosby, 2001; Fiore, et al., 2000). Predisposing factors include a history of head trauma, prior seizure, or a central nervous system (CNS) tumor/lesion. Concomitant medications that can lower the seizure threshold include many antipsychotics and antidepressants, theophylline, and systemic steroids. Clinical situations, which may increase seizure risk include: excessive use of alcohol; abrupt withdrawal from alcohol, sedatives or benzodiazapines; addiction to opiates, cocaine or stimulants; use of over-the-counter stimulants or anorectics; and diabetes treated with oral hypoglycemics or insulin (Mosby, 2001; Micromedex, 2003).

Precautions

Instances of neuropsychiatric phenomena have been reported in depressed patients, who have received treatment with bupropion. These phenomena have been exhibited in the form of delusions, psychosis, concentration disturbance, paranoia, and confusion. These symptoms diminished upon dose reduction or discontinuation of bupropion. In studies conducted on non-depressed smokers, the incidence of neuropsychiatric side effects was comparable to placebo, although some studies lacked a level of control to provide a precise risk estimate (Mosby, 2001). Antidepressants, as a drug class, can “precipitate manic episodes” (Mosby, 2001) in patients with bipolar disorder, who are in the depressed phase of their illness. Underlying psychosis may also appear in susceptible patients (Mosby, 2001).

Bupropion treatment can result in a change in appetite and weight, with weight loss being the most common. If the patient is underweight, or has lost weight related to a depressive or other illness state, caution should be used, and the patient should be followed closely (Fiore, et al., 2000; Mosby, 2001).

Anaphylactic reactions have occurred during clinical trials with the use of Zyban® for smoking cessation at a rate of 1-3 per thousand (Mosby, 2001). Patients should be made aware of the signs and symptoms of allergic reactions, and be instructed to discontinue the medication immediately if any of these symptoms occur.

Well-controlled studies on bupropion use have not been done on pregnant women, but have been conducted on laboratory animals, and it has been classified as FDA Pregnancy Category B. Although no fetal harm has been shown in studies performed thus far, pregnant women should be encouraged and supported to attempt smoking cessation without the use of pharmacological intervention (Mosby, 2001). Bupropion is secreted in breast milk, and exposure to infants may cause serious adverse reactions, therefore, Zyban® should not be used by nursing mothers (Mosby, 2001; Micromedex, 2003).

Persons with renal or hepatic impairment should be closely monitored, as bupropion and its metabolites are conjugated in the liver and excreted through the kidneys. Studies have shown the half-life of bupropion to be significantly prolonged in patients with liver disease, with metabolites of the drug accumulating to levels 2-3 times normal (Mosby, 2001). No clinical experience has been provided to establish safe use of bupropion in patients with a recent history of myocardial infarction or unstable heart disease. Conference and collaboration with the Primary Care Manager (PCM) is advisable prior to initiation of Zyban® in any patient with a chronic/systemic illness.

Drug Interactions

Incidence of acute toxicity of bupropion has been heightened by concurrent administration of MAOIs. Bupropion use within 14 days of MAOI administration is contraindicated (Fiore, et al., Cohen, 2000; Mosby, 2001; Micromedex, 2003).

Metabolites of bupropion are inhibitors of the CYP2D6 isoenzyme *in vitro*. Co-administration of bupropion with drugs that are metabolized by this enzyme could increase or intensify the effects of these drugs and should be considered with caution. Drugs that are metabolized by the CYP2D6 isoenzyme include: tricyclic antidepressants; selective serotonin re-uptake inhibitors (SSRI); beta-blockers, antipsychotics and type 1C antiarrhythmics. A list of these drugs should be included in the standard operating procedure (SOP) for the tobacco cessation program. Consultation with the prescribing PCM is required prior to the initiation of Zyban® therapy in any patient being treated with one of the listed medications (Mosby, 2001; Micromedex, 2003).

Data from limited studies has indicated the potential for increased incidence of adverse reactions in patients taking bupropion concurrently with levodopa. As mentioned previously, drugs that lower seizure threshold may interact with Bupropion, thus increasing the potential for seizures.

Smoking cessation, in and of itself, produces physiological changes, which may alter the pharmacokinetics of some medications, requiring a dosage adjustment (Mosby, 2001). Again, consultation with the patient's PCM is the best approach when considering Zyban® therapy in patients with any potential for drug interaction.

Adverse Reactions

The most common adverse reactions reported in clinical trials of bupropion SR therapy were insomnia and dry mouth. Other events, which were reported at higher levels than placebo were: agitation; confusion; rash; sweating; tinnitus; tremor; anorexia/weight loss; and seizures, which were highly precipitating factor/dose dependent (Mosby, 2001; Micromedex, 2003).

Overdose

Limited experience with overdosage of bupropion SR has been reported. There has been a much higher incidence reported and studied, using the immediate release formulation of bupropion. Early symptoms of bupropion toxicity are confusion, lethargy, seizure, nausea and hallucinations. Late signs of bupropion toxicity are hypotension, muscle rigidity, stupor, coma, uncontrolled seizures and cardiac failure. Most patients recovered without long-term complications; rare deaths have been reported from massive ingestion of the drug (Mosby, 2001; Micromedex, 2003).

Nicotine Replacement Therapy (NRT)

Category and Action

Nicotine is categorized as a miscellaneous, central nervous system drug, and is the chief alkaloid in tobacco products. Nicotine binds to nicotinic-cholinergic receptors at the autonomic ganglia in the adrenal medulla, at the neuromuscular junctions and the brain (Mosby, 2001).

Nicotine's addictive or positive reinforcing properties are related to two separate types of CNS effects, stimulating and reward. The stimulating effect to the cerebral cortex produces heightened alertness and cognitive performance; this effect prevails at low doses. The reward effect to the limbic system produces pleasure and relaxation; this effect prevails at high doses (Mosby, 2001). "Intermittent intravenous administration of nicotine activates neurohormonal pathways, releasing acetylcholine, norepinephrine, dopamine, serotonin, vasopressin, beta-endorphin, growth hormone, and ACTH" (Mosby, 2001). Tolerance to nicotine develops acutely and chronically from smoking and from nicotine replacement therapy. Nicotine can increase circulating cortisol and catecholamines; tolerance does not develop to the catecholamine-releasing effects (Mosby, 2001).

The effects of nicotine on the cardiovascular system are varied, and include peripheral vasoconstriction, tachycardia, and elevated blood pressure. Use of nicotine replacement therapy in patients with cardiovascular disease should be considered with caution; collaboration with the PCM is warranted.

NRT Absorption, Metabolism, and Elimination

Absorption varies among products and routes of administration. The most rapid absorption is achieved with the nicotine nasal spray, the most constant steady state levels with the nicotine transdermal system (NTS), and the least amount of absorption is achieved with the nasal inhaler (Lillington, Leonard & Sachs, 2000).

The primary metabolites of nicotine are cotinine and trans-3-hydroxycotinine. The major site of nicotine metabolism is the liver; metabolism also occurs in the kidneys and lung. Ten percent of absorbed nicotine is excreted unchanged in the urine, however, this may increase to 30% in high urine flow and/or low urine pH (Mosby 2001).

Clinical Studies

Numerous studies have been performed through the years, using NRT for smoking cessation. Overall, results show statistically significant abstinence rates using all four methods of NRT, when compared to placebo at 6 weeks, 3, 6 and 12 months (Mosby, 2001). Studies comparing the four NRT products (gum, patch, nasal spray, inhaler), have shown varied results, however, experienced tobacco researchers who have tested all the products have found little difference in overall quit rates (Prochazka, 2000).

All studies reviewed, stressed the importance of individual/group counseling and support as an adjunct to NRT, in order to achieve the highest long-term success rates.

Contraindications

NRT is contraindicated in patients with known hypersensitivity or allergy to nicotine or its components (Mosby, 2001).

Warnings

Nicotine from any source can be toxic and addictive. The risk of using NRT in any form, should be weighed against the risk of continued smoking, and the likelihood of achieving abstinence without NRT (Mosby, 2001).

The Food and Drug Administration (FDA) pregnancy classification of NRT is Category D. Studies in pregnant animals have shown nicotine to be harmful to the fetus. Tobacco smoke has been shown to be harmful to the human fetus; single studies on nicotine have not been performed on humans, however, presumption is that of harm (Mosby, 2001). Nicotine passes freely into breast milk and the effect of nicotine on the nursing infant has not been studied (Mosby, 2001). Use of NRT in pregnant or nursing mothers is not recommended in tobacco cessation programs. Although a pregnant or nursing mother who is smoking, is already exposing her fetus/infant to nicotine and additional toxins, she is doing so by her sole choice. The prescribing of NRT by a healthcare professional creates a high level of responsibility, and in the case of a pregnant or nursing mother, a high level of liability. Pregnant and nursing mothers should be encouraged to quit smoking using educational, behavior modification and counseling approaches.

Safety must be considered when using NRT products. Amounts of nicotine tolerated by adults can be harmful or fatal to children or pets (Mosby, 2001). Patients should be cautioned to use safe storage and disposal techniques to prevent accidental ingestion of any form of NRT.

Precautions

Smoking while using NRT can greatly increase incidence of adverse effects and potential for toxicity (Mosby, 2001). Patients should be educated regarding the danger of continuing to smoke while using any form of NRT. Patients should then sign a “statement of understanding”, acknowledging comprehension of the education and intent of smoking abstinence during NRT.

Patients with a history of skin sensitivity/rash should be advised to watch for signs and symptoms of contact dermatitis when using the nicotine transdermal system. Patients with a history of reactive airway disease, or asthma should be warned of the potential for bronchospasm when using the nicotine inhaler or nasal spray (Mosby, 2001).

NRT is not considered an independent risk factor for the development of acute myocardial events (Fiore, et al., 2000). NRT should not be used in patients with a recent history of myocardial infarction, serious cardiac arrhythmias or severe/worsening angina. NRT should be considered with extreme caution in any patient with a history of cardiovascular, coronary, or vasospastic disease (Buerger’s, Prinzmetal’s, Raynaud’s). Consult with the PCM is required in the case of any patient, who has a history of cardiovascular disease. Studies have shown that NTS was well tolerated by patients with past history of coronary artery disease (stable), and did not cause an increase in angina frequency or arrhythmias (Mosby, 2001).

Although cessation from smoking is extremely important in such patients, the risks of prescribing NRT must be weighed carefully and discussed thoroughly by all providers caring for the patient.

The use of NRT in patients with hepatic or renal insufficiency has not been studied. The fact that nicotine is extensively metabolized, and its total system clearance is dependent on liver function, implies that hepatic impairment may affect drug kinetics (Mosby, 2001). Only marked, severe renal impairment would be expected to affect nicotine metabolite clearance from the circulation (Mosby, 2001).

NRT should be used with caution in patients with hyperthyroidism, pheochromocytoma, or insulin-dependent diabetes mellitus (IDDM), due to nicotine’s effect of catecholamine release in the adrenal medulla (Mosby, 2001). Nicotine also delays healing of peptic ulcers, and should be considered in patients with active peptic ulcer disease only when the benefit would outweigh the risk (Mosby, 2001). Patients with uncontrolled or accelerated hypertension are at risk for the development of malignant hypertension with the use of NRT (Mosby, 2001). Again, consult with the patient’s PCM is required as part of the decision-making process with NRT, in any patient who has a history of chronic illness.

Drug Interactions

Smoking cessation, as an indicator alone, may alter the pharmacokinetics of certain drugs. Smoking cessation, without the use of pharmacotherapies, can result in (Mosby, 2001):

- Decrease in induction of hepatic enzymes
- Increase in SQ insulin absorption
- Decrease in circulating catecholamines

Patients should be instructed to make their health care provider aware that they are planning to quit smoking, so that any medication dosage alterations can be considered.

Adverse Reactions

True adverse reactions to NRT are difficult to distinguish between withdrawal symptoms and the drug itself. A causal relationship is probable in the following adverse events (Mosby, 2001; Micromedex, 2003):

- Diarrhea, dyspepsia, dry mouth
- Arthralgia, myalgia
- Abnormal dreams, insomnia, nervousness (reported with higher frequency)
- Sweating, skin irritation (NTS), mouth and throat irritation (inhaler, gum), nasal irritation (spray)

Abuse and Dependence

Characteristics that contribute to substance abuse or dependence are rapid absorption, high fluctuations in blood levels, and high initial blood level (requiring repeating doses to maintain). Nicotine Transdermal System has a low abuse potential, due to slower absorption, smaller fluctuations in blood levels, lower blood levels and less frequent use (Mosby, 2001). Abuse has been reported with nicotine gum, inhaler, and nasal spray. The nasal spray form of NRT has the highest abuse potential, due to rapid absorption and high initial blood levels. It has been reported, that 15-20% of patients use the spray longer than recommended and 5% use higher doses than recommended (Mosby, 2001).

Overdose and Toxicity

Overdose or toxicity can occur in the following instances:

- Smoking while using NRT
- Applying several nicotine patches (NTS) at one time
- Ingesting a cartridge from a nicotine inhaler
- Chewing or ingesting large amounts of nicotine gum
- Overuse or ingestion of the contents of nicotine nasal spray

Signs and symptoms of nicotine toxicity are:

- Pallor and cold sweat
- Nausea/vomiting/diarrhea
- Salivation
- Abdominal pain
- Dizziness/weakness
- Disturbed vision and/or hearing
- Mental confusion

All patients should be educated regarding the potential for toxicity, signs and symptoms, and the importance of seeking immediate medical care in the event of an overdose (Mosby, 2001; Fiore, et al., 2000).

Routes of Administration and Dosage

NRT is manufactured for administration via four routes: transdermal (patch), gum, inhaler, and nasal spray. Nicotine gum and nicotine patches are available for over-the-counter (OTC) purchase. The nasal spray and inhaler are by prescription only, and are many times not covered by medical insurance (Fiore, et al., 2000).

Investigational Pharmaceuticals

Clonidine

Clonidine is categorized as an antihypertensive, and is not approved by the FDA for use in smoking cessation at this time. Its use as an adjunct pharmacotherapy in tobacco cessation programs is investigational (Fiore, et al., 2000). Five studies compared Clonidine to placebo, using it in both oral and transdermal routes. Overall results from the studies showed Clonidine revealed abstinence rates twice those of placebo. Clonidine has several significant side effects, and abrupt discontinuation can result in nervousness, agitation, headache, tremor and rapid rise in blood pressure. Clonidine is suggested to physicians as a second-line agent, to be used under guidance with patients unable to use a first-line medication (Fiore, et al., 2000).

Nortriptyline

Nortriptyline is categorized as a tricyclic antidepressant, and is not approved by the FDA for use in smoking cessation. Its use as an adjunct pharmacotherapy in tobacco cessation programs is investigational at this time (Fiore, et al., 2000). Limited studies have looked at Nortriptyline's use in smoking cessation. Two studies were identified, comparing Nortriptyline to placebo. In each study, abstinence rates with Nortriptyline were over twice those achieved with placebo. Nortriptyline has numerous side effects and should be considered a second-line agent for use under a physician's direction with patients unable to use first-line medications (Fiore, et al., 2000).

Combination Therapy

Zyban®/Nicotine Transdermal System

Several studies have shown increased abstinence rates and higher long-term abstinence rates, when Zyban® and NTS are combined (Mosby, 2001). Both are used according to prescribing guidelines, with NTS starting on the quit date. This combination therapy has been shown to be especially successful in highly nicotine-dependent, long-term smokers (Prochazka, 2000; Mosby, 2001). Combining these two therapies has resulted in treatment-emergent hypertension in susceptible patients (Mosby, 2001). Patients should be screened carefully, according to SOP guidelines, when considering combination therapy. Consultation with the health care provider is advised with patients who have a history of hypertension, even if the patient is currently controlled. Patients with elevated blood pressure readings on initial evaluation should be scheduled for a 5-day blood pressure check prior to the initiation of therapy. Blood pressure elevations revealed during the 5-day check should be reviewed by the health care provider. All patients receiving combination therapy should have weekly blood pressure checks. A Standard Operating Procedure (SOP) should be established for all combination therapy guidelines/protocols.

Ways to Quit

The landmark 1964 Surgeon General's Report on Tobacco outlined the health hazards of tobacco use. Since that report, millions of tobacco users have been motivated to quit. During the 1980s, nicotine replacement therapy was introduced and later Zyban was approved for tobacco cessation. In addition, there are several non-pharmacological methods for smoking cessation. These methods include the cold turkey method, tapering, self-help, aversive smoking, acupuncture, and hypnosis.

Cold Turkey

Cold turkey is defined as the abrupt cessation of all forms of tobacco use. It is the reported method of over 50 million ex-smokers, therefore considered the most popular and successful method (Ferry, 1999). The American Cancer Society recommends going cold turkey over other methods (ACS, 1995). However, there is controversy. Researchers conclude that going cold turkey is considered the "gold standard" simply because it was the only method available for so long. It also does not take into consideration the 12 million people who have died from smoking related causes since 1964 (Ferry, 1999).

The cold turkey method is considered to be most successful for users who have a low level of nicotine dependence. This refers to people who smoke less than a half a pack a day and do not smoke immediately upon waking (Ferguson, 1987). The 5-year abstinence rates for people who try the cold turkey method are 5% for heavy smokers, 10% for moderate smokers, and 20% for light smokers (Ferry, 1999).

Abrupt cessation of nicotine causes neurotransmitter changes in the central nervous system. The sudden decrease of dopamine and norepinephrine causes withdrawal symptoms of anxiety, irritability, increased appetite, weight gain, nicotine cravings, concentration difficulties, and depression. Curbing these withdrawal symptoms is the leading reason for relapse and the reason going cold turkey is so difficult (Lillington, Leonard, Sachs, 2000).

Tapering

Tapering is another method for tobacco cessation that involves reducing the number and amount of cigarettes smoked. This method is also called Controlled Smoking, or Tobacco Use Reduction. Tapering should only be used as a tool for tobacco cessation. Simply decreasing the amount of cigarettes smoked does not decrease the health risks of smoking (ACS, 1995).

There are two methods for tapering. The first method involves counting the number of cigarettes smoked and decreasing that number daily until it reaches zero. The second method puts each cigarette on a schedule, or postpones each cigarette for a certain length of time. The time frame is lengthened until no period is designated as a time to smoke (ACS, 1995).

Controlled Smoking is a technique developed by Tom Ferguson MD. This method involves reducing the number of cigarettes smoked by $\frac{1}{2}$ to $\frac{2}{3}$. He also suggests changing the patient's normal brand of cigarettes to one with a lower level of tar and nicotine. The final step requires smokers to reduce the amount of each cigarette smoked (Ferguson, 1987). These techniques are useful in helping smokers to cut down before going cold turkey or using pharmacological methods for cessation.

There are hazards associated with tapering. Smokers who taper often compensate for the decrease in nicotine consumption by altering their puffing patterns. They take deeper and more frequent puffs. They can also unconsciously cover the vents on the cigarette filter to allow for more nicotine to go through the filter and into their lungs (Ferguson, 1987). Another pitfall of tapering is the ease at which a smoker can return to their previous level of tobacco use (ACS, 1995).

Switching to low tar and nicotine cigarettes is not a guarantee that smokers will inhale less tar and nicotine. Tobacco companies manufacture cigarettes with varying levels of tar and nicotine. However, these levels are determined by machines, which have preset puffing patterns. A smoker can alter his/her puffing pattern and extract as much nicotine from a low-nicotine level cigarette as they can from a high-nicotine level cigarette (Ferguson, 1987).

Tobacco companies also manufacture cigarettes that are labeled "light" or "ultra-light". These words are used as descriptors to distinguish products and do not indicate lower levels of tar and nicotine. These types of cigarettes offer no health benefits over regular cigarettes (CDC, 2000).

Self-help

The self-help method is defined as using resources other than clinical interventions to aid in tobacco cessation. Self-help materials include manuals, brochures, videos, and online support. This method allows health care professionals to reach a large number of smokers due to the ease of material distribution. The most effective materials include exercises where people can track their smoking patterns (McMahon and Jason, 2000).

Materials and online support are available from:

- USACHPPM Tobacco Cessation Program: <http://chppm-www.apgea.army.mil/dhpw/Population/TobaccoCessation.aspx>
- American Cancer Society: <http://www.cancer.org>
- American Heart Association: <http://www.americanheart.org>
- Centers for Disease Control and Prevention Tobacco Information and Prevention Source: <http://www.cdc.gov/tobacco/>
- National Cancer Institute: <http://www.nci.nih.gov/>
- American Lung Association: <http://www.lungusa.org/>

- Agency for Health Care Policy and Research: www.ahealth_care_providerr.gov/clinic

Self-help techniques have higher success rates when combined with cessation programs that offer social support along with the information. There are few studies available to document the effectiveness of self-help techniques for tobacco cessation (McMahon and Jason, 2000).

Aversive Smoking

The aversive smoking technique involves smoking a high number of cigarettes in a short time frame in order to produce nausea, malaise, and vomiting. This technique is also called rapid smoking, rapid puffing, focused smoking, or satiation smoking. It aids in cessation by applying a negative association with smoking (Fiore, et al., 2000).

A patient should take as large a puff as possible from a cigarette every 6 seconds. This should be continued for up to thirty minutes or until the patient experiences nausea and vomiting (Ferguson, 1987).

Aversive smoking is used infrequently and should be used under medical supervision. It should be used only after all other cessation methods have failed (Fiore, et al., 2000). Patients should be screened carefully, and it should be used cautiously with patients who have suffered an MI, have diabetes, or a history of CAD. It should not be used with patients who are pregnant or have high blood pressure (Ferguson, 1987).

Several studies show that aversive smoking is effective in aiding cessation. However, it is not recommended as a first-line technique (Fiore, et al., 2000).

Acupuncture

Acupuncture is a method in which a trained practitioner places long thin needles through specific points on the body. The needles are then manipulated or supplied with a mild electric current in order to achieve the desired effect.

Acupuncture has been a treatment method in the Far East for centuries (White, Resch, Ernst, 2000). The World Health Organization, and the American medical and veterinary communities, also recognize it as an alternative treatment method for substance abuse, pain relief, and anesthesia (Bernstein, 2000).

Although the mechanism of acupuncture is not fully understood, the principle mode of action is thought to be neurochemical stimulation through production of endogenous opioids, serotonin, norepinephrine, and cholecystokinin (White, et al., 2000).

Acupuncture for smoking cessation primarily uses points on the ear and face; however, other points on the body may be needled simultaneously. The patient relaxes for 10 to 20 minutes as the needles are placed and a mild electrical current is applied. Once these needles are removed, a second needle, or set of needles, is placed into the ear. These needles are covered with an adhesive dressing and left in for 1 to 2 weeks.

During this time, if the patient experiences a craving for nicotine, he/she presses on the indwelling needles until the cravings subside. After the specified time period, the needles are removed by the practitioner (White, et al., 2000).

The success of acupuncture for tobacco cessation is thought to be linked to the patient's positive expectations about the procedure. Few studies have been conclusive regarding the effectiveness of acupuncture for tobacco cessation (Fiore, et al., 2000).

Hypnosis

Hypnosis is a technique that places patients into an altered state of consciousness, which is accompanied by an abnormal sensibility to suggestions. It originated in ancient Greece, however it did not gain medical recognition until the 18th century when it was popularized by Franz Anton Mesmer (Margolis, 1997).

Hypnosis has three distinct phases: absorption, dissociation, and suggestibility (Godoy, 1999). The absorption phase is the period in which deep breathing and fixation are used to induce a trance. The dissociation stage is a period of deep relaxation, which produces an altered state of consciousness. The last stage is the suggestibility stage in which the patient is open to positive suggestions (Margolis, 1997).

During the suggestibility phase the patient experiences a change in mental function, which can allow the practitioner to plant thoughts regarding the patient's perception, expectations, conditioned responses, self-talk, self-control, and motivation. Hypnosis has been used as a treatment method for pain, psychosomatic symptoms, stress management, and habit control (Margolis, 1997).

Hypnosis has no standardized procedure for tobacco cessation. Depending on the practitioner, it can take a single session or up to ten sessions to produce the desired results. Like acupuncture, hypnosis is thought to be effective for low nicotine level dependence and has been linked to the patient's positive expectations (Margolis, 1997). There have been few scientific studies, which have been conclusive in supporting hypnosis as an effective tobacco cessation technique (Fiore, et al., 2000).

Conclusion

In conclusion, a variety of methods are available for tobacco cessation. However, pharmacological interventions combined with clinical counseling are the only accurately documented and researched methods for tobacco cessation (Fiore, et al., 2000).

Special Topics and Stress Management

Special topics relating to tobacco cessation are factors that affect the effectiveness and efficiency of tobacco cessation interventions. These factors include: post-cessation weight gain, tobacco users other than cigarette smokers, and health care access barriers that may hinder a patient from receiving tobacco cessation treatment. The United States Public Health Service's Clinical Practice Guidelines for Treating Tobacco Use and Dependence address these special topics and was used in the development of the following summary.

Weight Gain after Tobacco Cessation

Most smokers who quit smoking gain weight. Most will gain less than ten pounds, however some (about 10%) gain up to 30 pounds. Weight gain following smoking cessation is a minor threat to health when compared to the health threats associated with continued smoking. Women have the tendency to gain slightly more weight than men. Regardless of gender, African-Americans, people less than 55 years old, and heavy smokers (>25 cigarettes per day) have a greater risk for major weight gain.

Some smokers, especially women, have concern or fear about weight gain that acts as motivation for them to continue or resume smoking. Teenagers who are concerned about their weight start smoking more often than other adolescents.

Some evidence suggests that weight gain can be reduced if smoking cessation is accompanied by a moderate increase in physical activity. One study also indicates that long-term abstinence rates are increased for those who combine smoking cessation with regular exercise program. Combining physical activity with a cognitive-behavioral smoking cessation program may delay weight gain.

Nicotine replacement therapy (NRT) seems to delay post-cessation weight gain. Unfortunately, once the smoker stops using NRT, the smoker gains almost the same amount of weight that would be gained if NRT had not been used at all.

Bupropion SR also seems to be effective in delaying post-cessation weight gain. Unfortunately, once the smoker stops using Bupropion SR the smoker gains almost the same amount of weight that would be gained if the Bupropion SR had not been used at all.

Post-cessation weight gain can be attributed to increased caloric intake via food or alcohol and to metabolic adjustments. Metabolic adjustments can cause a person to gain weight even in the absence of increased caloric intake. Once a person resumes smoking, he or she will lose all or some of the weight gained in the cessation attempt.

How Clinicians Should Address Weight Gain

A health care provider should not deny the likelihood of weight gain nor minimize the significance of weight gain to the patient. The patient should be told about the possibility of weight gain. Patient's fears about weight gain should be addressed. The

fact that most weight gain is less than 10 pounds and continuing smoking is a greater health risk than increased weight can be used to ease the patient's concerns. Second-hand smoke also poses a threat to people other than the smoker. The health care provider should emphasize before and during the cessation attempt that smoking cessation is the primary and immediate goal. During the cessation attempt, the health care provider should also offer to address the weight gain after the patient has successfully stopped smoking. The patient should avoid intense weight control activities until after the smoking cessation effort is successful and the patient feels confident that he or she will not resume smoking. The health care provider should encourage the patient to work toward a healthy lifestyle that includes moderate exercise, eating plenty of fruits and vegetables, and limited alcohol consumption.

Noncigarette Tobacco Products

Users of smokeless tobacco also develop nicotine dependence and are at risk for serious health consequences. Consumption of chewing tobacco and snuff has increased, especially among young males. Users of smokeless tobacco are at risk of developing abrasions of teeth, tooth decay and tooth loss, cancer of the gums, throat and tongue, and cardiovascular disease.

Cigar use poses serious health risks also. Cigar smokers have a higher risk for coronary artery disease, COPD, lung and other cancers. Evidence suggests that a dose-response relationship exists between cigar smoking and development of these conditions. Cigar sales increased almost 50% between 1993 and 1997. In 1997, an estimated 6 million American adolescents age 14-19 reported smoking at least one cigar within the last year. Health care providers should be aware of and address the use of noncigarette products.

U.S. Public Health Service's (USPHS) review of literature revealed evidence that dental health clinicians can increase tobacco abstinence rates by simply advising the patient to quit. Non-pharmacological treatments used for smoking cessation are limited but potentially effective in smokeless tobacco cessation. Health care providers should advise their patients to quit regardless of the form of tobacco that the patient uses.

USPHS states that insufficient evidence exists that suggest that tobacco dependence pharmacotherapies increase long-term abstinence among smokeless tobacco users. The studies reviewed were conducted using the nicotine patch and nicotine gum.

Health Care Provider Training

Health care providers must be trained in effective tobacco cessation treatments. Training is important because lack knowledge of tobacco cessation treatment can be a significant barrier to effective intervention.

Continuing education in tobacco cessation will benefit practicing health care providers. USPHS suggests that clinicians receive reimbursement for tobacco cessation treatment. USPHS also suggests that tobacco cessation activity be tracked. Factors that would promote the training of health care providers in tobacco cessation are:

- 1) Include education and training in tobacco cessation treatments in the required curricula of all disciplines.
- 2) Include questions on effective tobacco cessation treatments in licensing and certification examinations.
- 3) Adoption of uniform standards of competence in tobacco cessation treatments for all members by specialty societies.

Health care providers who use tobacco should use treatment programs to quit permanently. Health care providers are important role models for patients. In a report of tobacco use by occupation, the rate of smoking was 5.5% for physicians, 7.4% for dentists, 8.7% among physical therapists, and 22% among registered nurse. All of these prevalence rates are lower than the tobacco-use rates of the general population.

Economic Aspects Of Tobacco Dependence Treatments And Health Systems Interventions

Smoking cessation treatments, including pharmacotherapy, are extremely cost effective and compare favorably with routinely reimbursed medical interventions and preventive screenings. Smoking cessation treatments can also prevent a variety of costly diseases like heart disease, cancer, and pulmonary disease. Smoking cessation treatment has been referred to as the “gold standard” of preventive interventions.

Smoking cessation treatment for hospitalized patients results in decreased short-term medical costs and less future hospital visits. For pregnant females, tobacco cessation results in fewer low birth weight babies, reduced number of perinatal deaths, reduced physical problems during infancy and childhood, and reduced cognitive problems during infancy and childhood.

Inadequate health plan coverage of tobacco cessation treatment reduces access to preventive services and reduces the number of people who benefit from tobacco cessation treatment. Fully covered health plan coverage of tobacco cessation treatment increases utilization of tobacco cessation treatments and reduces the prevalence of smoking among health plan members.

Prepaid or discounted prescription drug benefits increase the number of a patient who receive pharmacotherapy and increases the number of patients who abstain from smoking. Sufficient health plan reimbursement for preventive care results in a trend toward decreased smoking.

Stress Management

Dr. Tom Ferguson offers the following direction to assist clinicians to help their patients deal with stress in the absence of tobacco use. The key to managing stress is to alternate intense periods of purposeful activity with time out periods. “Islands of peace” are key to successful stress management. Unfortunately, many tobacco users use tobacco to provide islands of peace. Successful smoking cessation requires the establishment of other “islands of peace.” The following is a 7-step process that can be used to manage stress.

- 1) Understand personal key stressors.
- 2) Identify personal stress signals.
- 3) Schedule islands of peace daily.
- 4) Explore new relaxation techniques and choose the best one.
- 5) Rehearse and visualize the relaxation plan.
- 6) Execute the relaxation plan.
- 7) Modify and adapt the plan, as needed.

Short-term stressors are dealt with quickly and are followed by a period of relaxation to allow the body to recover. Long-term stress occurs when subsequent short-term stressors occur before full recovery. Smokers rely heavily on cigarettes when experiencing long-term stress. Smoking to deal with long-term stress is a temporary solution. Smoking helps to repress feelings rather than deal with anger and sadness. Smoking also helps to ignore situations rather than deal with them.

The patient should be empowered to identify his or her stress signals. The following are common stress signals:

- Digestive upset
- Increased alcohol use
- Headaches
- Increased drug use
- Insomnia
- Grouchiness
- Loss of appetite
- Irritability
- Binge eating
- Increased smoking
- Feelings of hopelessness
- Increased distractibility

The health care provider should help the patient to schedule daily islands of peace. They can be scheduled as blocks of quiet time in advance. Have the patient review his or her schedule for the upcoming week and dedicate at least one evening to do an activity that brings him or her personal enjoyment. Have the patient schedule time to call people that he or she cares about and to schedule lunch dates with friends. The patient should seize opportunities to take short breaks and to physically relax. Encourage the patient to exercise to break stress. Interaction with pets has also proved

helpful. Help the patient to discover new ways to relax and to develop contingency plans in case situations occur that are unplanned.

Conclusion

Patients who are ready to quit most likely are nervous. They may have been in a situation in their past where cessation of a tobacco product seemed to create more trouble than it was worth. It is with questioning them about their fears and anxieties can you find a way to help ally these fears. Weight and stress are only two areas where the health care provider can help guide the patient deal with these issue. The health care provider needs to ask the question, “Do you want to quit smoking (dipping)?” If the answer is yes then seize the moment and help the individual move toward that goal.

Tobacco Cessation Competency Tests

Background: Statistics, Effects on the Body, and Special Populations

Matching:

- | | |
|--|---|
| ____ 1. Tobacco use | a) Excess mucous in lungs and throat caused by smoking |
| ____ 2. Nicotine is absorbed here | b) Top avoidable cause of illness and death in the U.S. |
| ____ 3. Breeding ground for bacteria and viruses | c) Gastrointestinal tract, respiratory mucus membrane and skin |
| ____ 4. More than 6,000 | d) 60 mg in the adult |
| ____ 5. Lethal dose of nicotine | e) Number of children and teenagers who try their first cigarette every day |
6. An effect of tobacco use on the male reproductive system is:
- a) The numbers of spermatozoa are increased.
 - b) The libido is enhanced.
 - c) Men between the ages of 31 and 49 who smoke showed 50% increase in the risk of impotence.
 - d) There are none found.
7. Some effects of smoking on the pregnant females include:
- a) Decreased fetal growth.
 - b) No correlation is found.
 - c) The rate of spontaneous abortion (miscarriage) is substantially higher in women who smoke.
 - d) Placental abruption has been found to be of a lower rate in smokers than in non-smokers.
8. According to the American Lung Association, tobacco use is a major contributor to the top three causes of death of African Americans—cancer, cardiovascular disease, and stroke.

True

False

9. Special issues in tobacco cessation for women include:
- a) Women are more likely to be diagnosed with depression
 - b) Women are more likely to be concerned with weight gain
 - c) Women are more likely to be have less social support for stopping
 - d) All of the above
10. As many as 30% of the people seeking tobacco cessation services may have a history of depression.

True

False

Assessment Tools and Types of Counseling

1. Name the six Transtheoretical Model of Change(TMC) stages as they apply to tobacco cessation.

- a) P _____
- b) C _____
- c) P _____
- d) A _____
- e) M _____
- f) R _____

2. In which TMC stage would it be best to have an individual make a quit-smoking plan?

3. Name the 4 A's defined by the American Cancer Society (ACS) which provide guidelines for counseling tobacco users.

- a) _____
- b) _____
- c) _____
- d) _____

4. The American Cancer Society suggests using tobacco use status as a vital sign.

True

False

5. An individual in the precontemplative stage is ready to quit smoking.

True

False

6. The Beck Depression Inventory is a valid instrument for screening the general population for depression.

True

False

7. Motivational interviewing is a method of counseling in which the health care provider focuses on the negative effects of tobacco use and uses scare tactics.

True

False

8. Name the two most important questions in the Fagerstrom Test of Nicotine Dependence in determining degree of nicotine dependence.

a) _____

b) _____

9. A study by Thorndike in 1995 found that physicians advise patients to quit smoking:

a) 21% of the time

b) Never

c) All of the time

d) 75% of the time

10. Give an example of how you would advise your patient to stop smoking during a routine visit. This patient also has a history of chronic bronchitis.

Pharmacological Interventions

1. The standard length of treatment with Zyban (Bupropion) for smoking cessation is:
 - a) A maximum of one week
 - b) 7 to 12 days
 - c) 7 to 12 weeks
 - d) One year
2. Which of the following individual would be potential candidates for Zyban therapy?
 - a) 32 year-old male, no known drug allergies, history of motor vehicle accident with multiple trauma 2 years ago. Current medication: Ibuprofen, Tegretol, multivitamins.
 - b) 29 year old female, allergic to penicillin, history of asthma. Current medication: Tri-Leven (BCPs), Flovent Inhaler, and Albuterol Inhaler both PRN.
 - c) 40 year-old female, no known drug allergies, history of depression, hypertension. Current medication: Lisinopril, HCTZ, Wellbutrin, calcium supplements.
 - d) 58 year-old male, allergic to Sulfa, history of diabetes, pancreatitis, cirrhosis, alcohol abuse with history of blackouts and has had addiction treatment three times. Current medication: Insulin, Zantac, Lactulose.
3. Nortriptyline has been used as a second-line therapy in smoking cessation in limited, investigational studies. Nortriptyline is classified as:
 - a) Narcotic analgesic
 - b) Antianginal
 - c) Tri-cyclic antidepressant
 - d) Antihypertensive
4. Smokers should start Zyban therapy on the morning of their "quit date".

TrueFalse
5. The two most common adverse events associated with Zyban therapy are:
 - a) Itching and taste perversion
 - b) Dizziness and vomiting
 - c) Increased appetite and impotence
 - d) Insomnia and dry mouth

6. Two main contraindications for the use of Zyban are:
 - a) History of depression and allergy to eggs
 - b) Use of a monoamine oxidase inhibitor (MAOI) and history of seizure disorder
 - c) Going to the field and eating MREs.
 - d) History of mild hypertension and high cholesterol
7. Nausea, cold sweat, disturbed hearing and vision, confusion, weakness and abdominal pain are symptoms of:
 - a) Nicotine addiction
 - b) Nicotine withdrawal
 - c) Nicotine toxicity
 - d) Nicotine response
8. The medication Clonidine, has shown success as an adjunct for smoking cessation, but it's FDA approved use is:
 - a) Antidepressant
 - b) Antihistamine
 - c) Antihypertensive
 - d) Antiemetic
9. Combination treatment with Zyban and Nicotine patches has been shown to be successful. Patients on this treatment regime should be followed closely for:
 - a) Combination drug addiction
 - b) Treatment-emergent hypertension
 - c) Excessive weight gain
 - d) Sexual side effects
10. The maximum duration of therapy with nicotine patches is:
 - a) 10 weeks
 - b) 6 months
 - c) 6 weeks
 - d) Until the patient no longer craves cigarettes

Ways to Quit

1. The only nonpharmacological method for smoking cessation recommended by the American Cancer Society is:

- a) Cold turkey
- b) Tapering
- c) Aversive Smoking
- d) Acupuncture

2. The withdrawal symptoms experienced when going cold turkey are due to:

- a) Increased serotonin
- b) Decreased dopamine and norepinephrine
- c) Increased endorphins
- d) Decreased endogenous opioids

3. Switching to low tar and nicotine cigarettes guarantees that a smoker will inhale less tar and nicotine.

True

False

4. Pharmacological intervention combined with clinical counseling is the only accurately documented and researched method for tobacco cessation.

True

False

5. The success of acupuncture and hypnosis is linked to:

- a) The patient's positive expectations
- b) Physical changes
- c) Mental changes
- d) Standardized procedures

6. The most effective self-help material contains:

- a) Exercises to track smoking patterns
- b) Stickers
- c) Reward coupons
- d) Humor

7. The mechanism of acupuncture is unknown, however it is thought to:

- a) Increase endogenous opioids
- b) Increase serotonin
- c) Increase cholecystokinin
- d) All of the above

8. Aversive smoking techniques are appropriate for all patients.

True

False

9. Hypnosis has a standard set of procedures for tobacco cessation.

True

False

10. Acupuncture for tobacco cessation primarily utilizes points on the face and the ear.

True

False

Special Topics and Stress Management

1. How many pounds do most people gain following smoking cessation?
 - a) 20 pounds
 - b) 10 pounds
 - c) 50 pounds
 - d) Most people lose weight.
2. Nicotine replacement therapy and bupropion affect weight gain following smoking cessation in the following way:
 - a) Delay but do not prevent weight gain
 - b) Increase weight gain
 - c) Prevent weight gain entirely
 - d) Cause weight loss
3. Post-smoking cessation weight gain can be caused by:
 - a) Increased caloric intake from food or alcohol
 - b) Change in the body's metabolic rate
 - c) Both a and b
4. Instead of weight, smoking cessation facilitators should help patients focus on:
 - a) Moderate exercise
 - b) Daily meals that include plenty of fruits and vegetables
 - c) Limiting alcohol consumption
 - d) All of the above
5. What benefits of smoking cessation should facilitators emphasize to help minimize the impact of weight gain for the program participant?
 - a) Smoking is much greater risk to health than weight gain.
 - b) Weight gain is usually less than 10 pounds.
 - c) Smoking, unlike weight gain, can hurt the health of people around the smoker through second-hand smoke.
 - d) All of the above.
6. Smokeless tobacco users are increasing their risk for cardiovascular disease.

True

False

7. "Island of peace" is

- a) The name of a Caribbean island
- b) The name of a small island in the Pacific
- c) Scheduled times of daily relaxation that serve as a stress management tool
- d) The name of a TV show

8. Name five stress signals.

- a) _____
- b) _____
- c) _____
- d) _____
- e) _____

Answer Key

Background: Statistics, Effects on the Body, and Special Populations

1. Tobacco use
 - b) Top avoidable cause of illness and death in the U.S
2. Nicotine is absorbed here
 - c) Gastrointestinal tract, respiratory mucus membrane and skin
3. Breeding ground for bacteria and viruses
 - a) Excess mucous in lungs and throat caused by smoking
4. More than 6,000
 - e) Number of children and teenagers who try their first cigarette every day
5. Lethal dose of nicotine
 - d) 60 mg in the adult
6. An effect of tobacco use on the male reproductive system is:
 - c) Men between the ages of 31 and 49 who smoke showed 50% increase in the risk of impotence.
7. Some effects of smoking on the pregnant females include:
 - a) Decreased fetal growth.
 - c) The rate of spontaneous abortion (miscarriage) is substantially higher in women who smoke.
 - d) Placental abruption has been found to be of a lower rate in smokers than in non-smokers.
8. According to the American Lung Association, tobacco use is a major contributor to the top three causes of death of African Americans—cancer, cardiovascular disease, and stroke.

True
9. Special issues in tobacco cessation for women include:
 - d) All of the above

10. As many as 30% of the people seeking tobacco cessation services may have a history of depression.

True

Assessment Tools and Types of Counseling

1. Name the six Transtheoretical Model of Change (TMC) stages as they apply to tobacco cessation.

Precontemplation
Contemplation
Preparation
Action
Maintenance
Relapse

2. In which TMC stage would it be best to have an individual make a quit-smoking plan?

Preparer

3. Name the 4 A's defined by the American Cancer Society (ACS) which provide guidelines for counseling tobacco users.

a) Ask
b) Advise
c) Assist
d) Arrange

4. The American Cancer Society suggests using tobacco-use status as a vital sign.

True

5. An individual in the precontemplative stage is ready to quit smoking.

False

6. The Beck Depression Inventory is a valid instrument for screening the general population for depression.

True

7. Motivational interviewing is a method of counseling in which the health care provider focuses on the negative effects of tobacco use and uses scare tactics.

False

8. Name the two most important questions in the Fagerstrom Test of Nicotine Dependence in determining degree of nicotine dependence.
 - a) Does the patient smoke within 5 minutes of waking?
 - b) Does the patient smoke greater than 25 cigarettes per day?
9. A study by Thorndike in 1995 found that physicians advise patients to quit smoking:
 - a) 21% of the time
10. Give an example of how you would advise your patient to stop smoking during a routine visit. This patient also has a history of chronic bronchitis.

When **advising** a patient to quit using tobacco, the advice must be firm and the message clear. When sharing advice with the patient, the advice should be personalized. In this case, incorporate the history of chronic bronchitis as a reason to quit smoking. Keep the message positive and focus on the benefits of quitting tobacco use. The NCI also recommends focusing on the **4 R's** during counseling: **R**elelevance of quitting; **R**isks of tobacco; **R**ewards of quitting; and **R**epeat the message.

Pharmacological Interventions

1. The standard length of treatment with Zyban (Bupropion) for smoking cessation is:
 - c) 7 to 12 weeks
2. Which of the following individual would be potential candidates for Zyban therapy?
 - a) 32 year-old male, no known drug allergies, history of motor vehicle accident with multiple trauma 2 years ago. Current medication: Ibuprofen, Tegretol, multivitamins.
No – Patient is on Tegretol with a history of multiple trauma, which indicates a history of seizures, contradicting Zyban use.
 - b) 29 year old female, allergic to penicillin, history of asthma. Current medication: Tri-Leven (BCPs), Flovent Inhaler, and Albuterol Inhaler both PRN.
Yes – This patient would be a potential candidate for Zyban therapy.
 - c) 40 year-old female, no known drug allergies, history of depression, hypertension. Current medication: Lisinopril, HCTZ, Wellbutrin, calcium supplements.
No – Patient is currently taking Wellbutrin, which is the same medication as Zyban (generic: Bupropion)

d) 58 year-old male, allergic to Sulfa, history of diabetes, pancreatitis, cirrhosis, alcohol abuse with history of blackouts and has had addiction treatment three times. Current medication: Insulin, Zantac, Lactulose.

No – Patient has a history of alcohol abuse, which would indicate a lowered seizure threshold, and also takes Insulin, which can lower seizure threshold. The patient also has cirrhosis. Cirrhosis alters liver function, making medication clearance a significant issue. The patient could possibly be prescribed Zyban in a lower dose if his liver function tests are within normal limits and he is followed very closely by his PCM. Overall, however, this patient is not a good candidate for Zyban therapy.

3. Nortriptyline has been used as a second-line therapy in smoking cessation in limited, investigational studies. Nortriptyline is classified as:

c) Tri-cyclic antidepressant

4. Smokers should start Zyban therapy on the morning of their "quit date."

False

5. The two most common adverse events associated with Zyban therapy are:

d) Insomnia and dry mouth

6. Two main contraindications for the use of Zyban are:

b) Use of a monoamine oxidase inhibitor (MAOI) and history of seizure disorder

7. Nausea, cold sweat, disturbed hearing and vision, confusion, weakness and abdominal pain are symptoms of:

c) Nicotine toxicity

8. The medication Clonidine, has shown success as an adjunct for smoking cessation, but it's FDA approved use is:

c) Antihypertensive

9. Combination treatment with Zyban and Nicotine patches has been shown to be successful. Patients on this treatment regime should be followed closely for:

b) Treatment-emergent hypertension

10. The maximum duration of therapy with nicotine patches is:

a) 10 weeks

Ways to Quit

1. The only nonpharmacological method for smoking cessation recommended by the American Cancer Society is:

a) Cold turkey

2. The withdrawal symptoms experienced when going cold turkey are due to:

b) Decreased dopamine and norepinephrine

3. Switching to low tar and nicotine cigarettes guarantees that a smoker will inhale less tar and nicotine.

False

4. Pharmacological intervention combined with clinical counseling is the only accurately documented and researched method for tobacco cessation.

True

5. The success of acupuncture and hypnosis is linked to:

a) The patient's positive expectations

6. The most effective self-help material contains:

a) Exercises to track smoking patterns

7. The mechanism of acupuncture is unknown, however it is thought to:

d) All of the above

8. Aversive smoking techniques are appropriate for all patients.

False

9. Hypnosis has a standard set of procedures for tobacco cessation.

False

10. Acupuncture for tobacco cessation primarily utilizes points on the face and the ear.

True

Special Topics and Stress Management

1. How many pounds do most people gain following smoking cessation?
 - a) 10 pounds
2. Nicotine replacement therapy and bupropion affect weight gain following smoking cessation in the following way:
 - a) Delay but do not prevent weight gain
3. Post-smoking cessation weight gain can be caused by:
 - c) All of the above
4. Instead of weight, smoking cessation facilitators should help patients focus on:
 - d) All of the above
5. What benefits of smoking cessation should facilitators emphasize to help minimize the impact of weight gain for the program participant?
 - d) All of the above.
6. Smokeless tobacco users are increasing their risk for cardiovascular disease.

True
7. "Island of peace" is
 - c) Scheduled times of daily relaxation that serve as a stress management tool.
8. Name five stress signals.

Stress signals include:

- Digestive upset
- Increased alcohol use
- Headaches
- Increased drug use
- Insomnia
- Grouchiness
- Loss of appetite
- Irritability
- Binge eating
- Increased smoking
- Feelings of hopelessness

- Increased distractibility

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